

REL Southwest Ask A REL Response

Early Childhood

September 2018

Question:

What is the effect of an arts-integrated education on student learning of preK mathematics?

Response:

Thank you for the question you submitted to our REL Reference Desk. We have prepared the following memo with research references to help answer your question. For each reference, we provide an abstract, excerpt, or summary written by the study's author or publisher. Following an established Regional Educational Laboratory (REL) Southwest research protocol, we conducted a search for research reports as well as descriptive study articles on the effect of an arts-integrated education on student learning.

We have not evaluated the quality of references and the resources provided in this response. We offer them only for your reference. Also, we searched the references in the response from the most commonly used resources of research, but they are not comprehensive, and other relevant references and resources may exist. References provided are listed in alphabetical order, not necessarily in order of relevance. We do not include sources that are not freely available to the requestor.

Research References

Lee, B. K., Patall, E. A., Cawthon, S. W., & Steingut, R. R. (2015). The effect of drama-based pedagogy on preK–16 outcomes: A meta-analysis of research from 1985 to 2012. *Review of Educational Research*, 85(1), 3–49. Retrieved from https://www.researchgate.net/publication/272361775_The_Effect_of_Drama-Based_Pedagogy_on_PreK-16_Outcomes_A_Meta-Analysis_of_Research_From_1985_to_2012

From the ERIC abstract: “The President’s Committee on the Arts and Humanities report heartily supported arts integration. However, the President’s Committee called for a better understanding of the dimensions of quality and best practices. One promising arts integration method is drama-based pedagogy (DBP). A comprehensive search of the literature revealed 47 quasi-experimental DBP intervention studies conducted since 1985. The literature showed that designs were generally weak for making causal inferences and that outcomes other than achievement were infrequently studied. A meta-analysis of this

research suggested that DBP has a positive, significant impact on achievement outcomes in educational settings. Effects were strongest when the intervention (a) was led by a classroom teacher or researcher rather than a teaching artist, (b) included more than five lessons, and (c) was integrated into English language arts or science curriculum compared to other domains. Positive effects across psychological and social outcomes were found. Implications for policy and practice are discussed.”

Moss, T. E., Benus, M. J., & Tucker, E. A. (2018). Impacting urban students’ academic achievement and executive function through school-based arts integration programs. *SAGE Open*, 8(2), 1–10. Retrieved from <http://journals.sagepub.com/doi/pdf/10.1177/2158244018773131>

From the abstract: “Arts integration in school-based curriculum has been an area of interest in the United States since formal schooling began in the 1800s. Arts integration uses art forms such as, visual arts, music, drama, or dance with a language arts, math, science, and/or social studies curriculum. This article examines nine studies that assessed the effects of school-based arts integration on urban students’ academic achievement. Findings suggest that an arts-integrated curriculum has positive effects on urban student academic achievement. Despite the positive impact of arts integration, the cumulative understanding of current research does not definitively offer an explanation for why arts integration successfully impacts student achievement. The analysis of findings suggests that improvements in core content knowledge may be a minor outcome when compared with possible developmental gains in executive function (representational knowledge, operational processes, and self-regulation) from an arts integration program. Opportunities to focus future research in arts integration programs around the construct of executive function are suggested and justified based on analysis of findings.”

Walker, E., Tabone, C., & Weltsek, G. (2011). When achievement data meet drama and arts integration. *Language Arts*, 88(5), 365–372. Retrieved from http://www.shu.edu/college-readiness/upload/Walker_When-Achievement-Data.pdf

From the abstract: “In this research, two questions related to arts integration are studied: First, the extent to which sixth and seventh grade students’ language arts and mathematics performance, as well as their engagement with school are positively impacted by classroom settings in which theater strategies are integrated into language arts instruction; and second, the extent to which students are able to sustain their learning gains in language arts once they return to a traditional language arts learning environment. The research is based on a study in which four schools in an urban school district that has a high poverty level, were randomly selected to participate in a federally funded arts integration project; and four schools were randomly assigned to the control group. A total of 28 classrooms and 1020 students were in the study sample. The findings indicate that being in an arts-integrated classroom increased the odds of students passing the state assessment in language arts by 77 percent and by 42% in mathematics. Students who exited the arts integrated project were able to sustain their learning gains once they returned to a traditional instructional setting. For example, seventy-eight% of eighth graders whose language arts instruction as seventh graders included the use of theater

strategies were proficient in language arts on the eighth-grade assessment, compared to 69% of students who were instructed using traditional pedagogy.”

Additional Organization to Consult

The Wallace Foundation – <https://www.wallacefoundation.org/knowledge-center/pages/research-on-arts-integration-presentation.aspx>

From the website: “Wallace identifies important problems, funds real-world tests of possible solutions, and disseminates what’s been learned nationally to inform field leaders, policymakers and others who can effect beneficial change.”

Research on Arts Integration—An ESSA Evidence Review (presented March 10, 2018): “This presentation seeks to help educators quantify the effects of arts integration in schools and identify programs and activities that could qualify for federal funding. It summarizes a report by the American Institutes for Research that found that arts integration can move the average student from the 50th to the 54th percentile in student achievement. It further points to 44 arts integration programs that show enough evidence of effectiveness to qualify for federal funding under the Every Student Succeeds Act of 2015 (ESSA).

Meredith Ludwig of American Institutes for Research, lead author of the report on which this presentation is based, and Rachel Hare Bork of The Wallace Foundation delivered the presentation at the Arts Education Partnership’s State Policy Symposium in March 2018.”

Methods

Keywords and Search Strings

The following keywords and search strings were used to search the reference databases and other sources:

- Arts-integrated education effects + PreK
- Arts-integrated education + PreK + math
- Integrated arts education and Kindergarten math Outcomes
- Effects of Preschool Arts Curriculum Programs on Math Performance
- Effects of Kindergarten Arts Curriculum on Math Performance

Databases and Resources

We searched ERIC for relevant, peer-reviewed research references. ERIC is a free online library of more than 1.6 million citations of education research sponsored by the Institute of Education Sciences (IES). Additionally, we searched the What Works Clearinghouse.

Reference Search and Selection Criteria

When we were searching and reviewing resources, we considered the following criteria:

- *Date of the publication:* References and resources published from 2003 to present, were included in the search and review.
- *Search priorities of reference sources:* Search priority is given to study reports, briefs, and other documents that are published and/or reviewed by IES and other federal or federally funded organizations, academic databases, including ERIC, EBSCO databases, JSTOR database, PsychInfo, PsychArticle, and Google Scholar.
- *Methodology:* The following methodological priorities/considerations were given in the review and selection of the references: (a) study types—randomized control trials, quasi-experiments, correlational studies, descriptive data analyses, literature reviews, mixed methods analyses, and so forth; (b) target population, samples (representativeness of the target population, sample size, volunteered or randomly selected, and so forth), study duration, and so forth; and (c) limitations, generalizability of the findings and conclusions, and so forth.

This memorandum is one in a series of quick-turnaround responses to specific questions posed by stakeholders in the Southwest Region (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas), which is served by the Regional Educational Laboratory (REL) Southwest at AIR. This memorandum was prepared by REL Southwest under a contract with the U.S. Department of Education’s Institute of Education Sciences (IES), Contract ED-IES-91990018C0002, administered by AIR. Its content does not necessarily reflect the views or policies of IES or the U.S. Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.